Remarks/Arguments

Claims 30, 31, 38, 39, 43, 44, and 48 to 61 are pending in this patent application. Claims 50 and 57 have been amended to remove the duplicative term "di-tert-butylsilane."

The Action includes rejections under 35 U.S.C. § 103(a). In view of the following remarks, reconsideration and withdrawal of the rejections are requested respectfully.

Discussion of the Rejection Under 35 U.S.C. § 103(a)

Claims 30, 31, 39, 44, 49, 51, 56, and 58 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. patent application Publication No. 2001/0055891 to Ko et al. ("the Ko publication") in view of in view of U.S. patent application Publication No. 2003/0151031 to Li et al. ("the Li publication") and the article C. Waldfried, et al., "Single Wafer RapidCuring™ of Porous Low-k Materials", IEEE (2002), pp. 226-228 ("the Waldfried reference"). Applicants respectfully traverse the rejection because one of ordinary skill in the art at the time of the present invention would not have been motivated to make the proposed combination, nor would the skilled artisan have had a reasonable expectation of success in making such combination.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." MPEP § 2143.

Applicants' claimed invention defines a mixture for depositing an organosilicate film comprising a dielectric constant of 3.5 or below, the mixture comprising at least one structure-former precursor selected from the group consisting of an organosilane and an

organosiloxane and a pore-former precursor that is distinct from the at least one structure-former precursor, ***wherein the pore-former precursor is a hydrocarbon compound consisting of from 1 to 13 carbon atoms and less than or equal to 2n+2 hydrogen atoms wherein n is the number of carbon atoms***, and wherein at least one of the precursors and/or the organosilicate film exhibits an absorbance in the 200 to 400 nm wavelength range (*see, e.g.*, Claim 30).

The Action acknowledges that at least one difference between Applicants' invention and the Ko publication is that the Ko publication does not teach or suggest a hydrocarbon porogen consisting of from 1 to 13 carbon atoms and less than or equal to 2n+2 hydrogen atoms wherein n is the number of carbon atoms (Action at 3). To remedy this deficiency, the Action combines the Ko publication with the Li publication and alleges that "Li et al. disclose a mixture for depositing an organosilicate film ... wherein the porogen may be a hydrocarbon, including adamantine ($C_{10}H_{16}$, which has less than 2n+2 hydrogen atoms)" (Action at 3).

The Action does not specifically articulate its basis for the motivation behind the proposed combination; however, the Action appears to allege that merely because the Li publication discloses that adamantane can function as a porogen in its films, one of ordinary skill in the art at the time of the invention would have been motivated to employ adamantane as a porogen in ***any*** chemical matrix system. Moreover, the Action appears to allege that such artisan would have had a reasonable expectation of success in choosing adamantane as a porogen for use in the Ko publication's OSG (organosilicon glass) matrix, which would result in Applicants' claimed mixtures. Applicants submit respectfully that the Li publication is incapable of providing any such motivation (or reasonable expectation of success) because the Li publication is clear that not all porogens perform well in all chemical matrix systems.

For example, the Li publication is clear that not all porogens function in all chemical matrix systems:

> Although International Patent Publication WO 00/31183 teaches that a porogen may be added to thermosettable benzocyclobutene, polyarylene, or thermosettable perfluoroethylene monomer to increase porosity thereof and thus, lower the dielectric constant of that resin, the reference teaches that ***a porogen that is known to function well with a first matrix system will not necessarily function well with another matrix system***

(Li at page 27, paragraph [0135]) (emphasis added). Similarly, the Li publication at page 34, paragraph [0209] teaches that polybutadiene which is a porogen known for use in other matrix systems can not be used successfully in the matrix systems of the Li publication:

> Although WO 00/31183 teaches that polybutadiene is useful as a porogen, we tried polybutadiene as a porogen by adding it to a composition similar to Inventive Examples 4-7 in our pending U.S. Serial No. 60/350,187 filed Jan. 15, 2002 and learned that regardless of the polybutadiene's molecular weight, the composition's refractive index did not change as shown in Table 3 below and thus, a lower dielectric constant material could not be achieved.

In view of such teachings, how can one of ordinary skill in the art possibly be motivated to try adamantane in the Ko publication's OSG matrix, let alone have a reasonable expectation of success in doing so? Indeed, in the absence of a disclosure in the art or a convincing line of reasoning that suggests the modification, the obviousness standard upon which a rejection is based is the "obvious to try" standard. This is not an appropriate standard - the art must suggest with some degree of certainty the success of that which applicants are claiming as their invention. *See In re Mercier*, 185 U.S.P.Q. 779 (C.C.P.A. 1975); and *In re Naylor*, 152 U.S.P.Q. 106 (C.C.P.A. 1966). Accordingly, because there is no reason to believe that a person of ordinary skill in the art would have been motivated to combine the Ko and the Li publications in such a way as to obtain Applicants' claimed invention, the rejection is improper and should be withdrawn.

Claims 48, 50, 52 to 55, 57, and 59 to 61 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable either (a) over the Ko publication in view of the Li publication and the Waldfried reference, and further in view of U.S. patent application Publication No. 2005/0194619 to Edelstein et al. ("the Edelstein publication"). Since, as discussed above, the combination of the Ko and Li publications and the Waldfried reference does not teach or suggest the basic invention, even if the Edlestein publication disclosed the additional limitations of Applicants' dependent Claims 48, 50, 52 to 55, 57, and 59 to 61 (*arguendo*), their combination with Ko and Li still would not render obvious the claimed invention. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

Applicants believe that the foregoing constitutes a complete and full response to the Action of record. Applicants respectfully submit that this application is now in condition for allowance. Accordingly, an indication of allowability and an early Notice of Allowance are respectfully requested.

The Commissioner is hereby authorized to charge the fee required and any additional fees that may be needed to Deposit Account No. 01-0493 in the name of Air Products and Chemicals, Inc.

Respectfully submitted,

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